IN THE CLAIMS

The following listing of the claims will replace all prior versions of the claims in the application.

1. (Previously Presented) A method of designing a biodegradable/bioresorbable tissue augmentation/reconstruction device, said method comprising:

creating a material density distribution map using a computer based on an initial design shape, said material density distribution map having discrete points;

determining a numerical weighting factor based on a predicted time-based elastic or molecular weight degradation pattern;

weighting said material density distribution map using said numerical weighting factor to determine a weighted density distribution map; and

using said weight density distribution map to determine a material reinforcement to create a final design shape such that the device will retain predetermined structural properties during a material degradation lifecycle.

2. (Previously Presented) The method according to Claim 1 wherein said material density distribution map is created using the computer using a technique chosen from the group consisting essentially of topology optimization, microstructure topology optimization, restricted topology optimization, image-based design, and computer-aided design techniques.

3. (Previously Presented) The method of Claim 1 wherein said material density distribution map is created using the computer using topology optimization having an algorithm employed to define said material density distribution map at predetermined time points during said material degradation lifecycle.

4. (Previously Presented) The method of Claim 1 wherein said material density distribution map is created using the computer using image-based design defining said material density distribution map at predetermined time points during said material degradation lifecycle.

5. (Previously Presented) The method of Claim 1 wherein said material density distribution map is created using the computer using general computer aided design techniques include defining said material density distribution map at predetermined time points during said material degradation lifecycle.

6. (Original) The method according to Claim 1 wherein said weighting factor is chosen from the group consistently essentially of a linear weighting factor, a nonlinear weighting factor, a time past degradation factor, and a ratio of a degraded material property to initial material property.

7. (Original) The method according to Claim 6 wherein said ratio of a degraded material property to initial material property includes a ratio of a degraded modulus to an initial modulus.

8. (Original) The method according to Claim 6 wherein said ratio of a degraded material property to initial material property includes a ratio of a degraded strength to an initial strength.

9. (Original) The method according to Claim 6 wherein said ratio of a degraded material property to initial material property includes a ratio of a degraded thermal conductivity to an initial thermal conductivity.

10. (Original) The method according to Claim 6 wherein said ratio of a degraded material property to initial material property includes a ratio of a degraded electrical conductivity to an initial electrical conductivity.

11. (Previously Presented) The method according to Claim 1, further comprising:

superposing said material density distribution map at predetermined time points using both time, degraded base stiffness, and said weighting factor.

12. (Previously Presented) The method according to Claim 1, further comprising:

superposing said material density distribution map at predetermined time points using density at a global anatomic level.

13. (Previously Presented) The method according to Claim 12, further comprising:

superposing said material density distribution map at predetermined time points using density at a physical size smaller than said global anatomic level.

14. (Previously Presented) The method according to Claim 1 wherein said weighting said material density distribution map using a weighting factor to determine a weighted density further includes employing material degradation kinetics to enhance said material density distribution map.

15. (Original) The method according to Claim 14 wherein said employing material degradation kinetics further comprises employing one chosen from the group consisting essentially of polylactic acid, polyglycolic acid, polyanhdyride, polycaprolactone, tri-calcium phosphate, and hydrogels.

16. (Currently Amended) A method of manufacturing a biodegradable/bioresorbable tissue augmentation/reconstruction device, said method comprising:

defining an initial shape as elements having a predicted material density between 0 and 1;

weighting each predicted material density by a predetermined degradation profile to define a weighted material density, said degradation profile being unique to a material used;

calculating a material weight in each of said elements by applying a time lasting factor and a degrading modulus factor to said weighted material density such that high load bearing regions within the device are reinforced to compensate for subsequent stiffness degradation due to bulk erosion of the device, and

manufacturing the device based on the calculated material weight.

17. (Currently Amended) The method according to Claim 16, further comprising:

converting said calculated material ~~weigh~~ weight to surface representation prior to said manufacturing.

18. (Currently Amended) The method according to Claim 17 wherein said converting said calculated material ~~weigh~~ weight to surface representation includes converting said calculated material ~~weigh~~ weight to a Stereo lithographic (STL) surface representation.

19. (Currently Amended) The method according to Claim 17 wherein said converting said calculated material ~~weigh~~ weight to surface representation includes converting said calculated material ~~weigh~~ weight to a Computer Aided Design (CAD) surface.

20. (Currently Amended) The method according to Claim 17 wherein said converting said calculated material ~~weigh~~ weight to surface representation includes converting said calculated material ~~weigh~~ weight to a wireframe representation.